



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Mount Blue Regional School District  
Franklin County  
Farmington, Maine  
A-1085-71-A-N

Departmental  
Findings of Fact and Order  
Air Emission License  
After-the-Fact

## FINDINGS OF FACT

After review of the air emissions license application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

### I. REGISTRATION

#### A. Introduction

Mount Blue Regional School District (MBRSD) located at 115 Learning Lane, Farmington, Maine has requested an after-the-fact air emissions license for an existing source from the Department. The air emissions license is for fuel burning equipment including oil and biomass heating units and emergency generators at the school district's buildings.

#### B. Emission Equipment

The following equipment is addressed in this air emission license:

#### Boilers

Equipment Cascade Brook School (CBS) Mount Blue Middle School (MS) Bus Garage (BG)	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Install Date	Stack #
CBS Pellet Boiler #1	2.3	300 lb/hr	biomass	2013	1B
CBS Oil Boiler #2	3.6	25.6 gal/hr	#2 fuel oil *	1991	1A
MS Boiler #1	3.4	24.5 gal/hr	#2 fuel oil *	2002	2
MS Boiler #2	2.8	19.8 gal/hr	#2 fuel oil *	2002	2
BG Boiler	1.4	10 gal/hr	#2 fuel oil *	1983	3

\* meets the criteria of ASTM D396 #2 fuel oil

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RAY BLDG., HOSPITAL ST.

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PORTLAND  
312 CANCO ROAD  
PORTLAND, MAINE 04103  
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, MAINE 04679-2094  
(207) 764-0477 FAX: (207) 760-3143

**Generator**

Equipment	Maximum Capacity (MMBtu/hr)	Firing Rate	Fuel Type, % sulfur	Install. Date	Stack #
MS Generator	3.1	22.2 gal/hr	diesel, 0.0015 %	2013	4
CBS Generator	0.83	330 scf/hr	propane, negligible	2013	5

C. Application Classification

MBRSD is classified as an existing source that is applying for its first air emission license, after the fact. A source is considered a major source based on whether or not expected emissions exceed the "Significant Emission Levels" as defined in the Department's regulations. The emissions for the new source are determined by the maximum future license allowed emissions, as follows:

Pollutant	Max. Future License (TPY)	Sig. Level
PM	1.6	100
PM <sub>10</sub>	1.6	100
SO <sub>2</sub>	3.9	100
NO <sub>x</sub>	5.4	100
CO	2.4	100
VOC	0.4	50
CO <sub>2</sub> e	<100,000	100,000

The Department has determined MBRSD is a natural minor source and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended). All criteria pollutants emitted from the existing units (licensed for the first time) are subject to Best Available Control Technology (BACT) requirements.

D. Regulatory Review

Provided in this section is a summary of State and Federal air regulations that apply to the existing emission sources at MBRSD. The source currently utilizes and has selected specific equipment that will achieve compliance with the following State and Federal air regulations.

*06-096 CMR 101 Visible Emission Regulation*

This rule establishes opacity limitations for emissions from several categories of air contaminant sources. The oil-fired boilers, wood pellet boiler, and diesel and propane fired generators are subject to Sections (2)(B)(1)(b), (2)(B)(1)(d), and (2)(B)(1)(e), which limits visible emissions from any unit firing fuel oil, diesel fuel, or wood respectively. The BACT limit will be as least as stringent and therefore the oil-fired, diesel fired, and wood fired units will be limited to an opacity of 20 percent on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period. The propane fired generator is limited to an opacity of 10 percent on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period.

*06-096 CMR 103 Fuel Burning Equipment Particulate Emission Standard*

06-096 CMR 103 of the Maine DEP Regulations applies to the following units since they are greater than 3 MMBTU/hour in size: the oil-fired boiler at Cascade Brook School, the larger of the two oil-fired boilers at the Middle School, and the new diesel generator at the Middle School. 06-096 CMR 103 limits the particulate matter emissions from these units to 0.12 pounds per million Btu of heat input.

*06-096 CMR 106 Low Sulfur Fuel Regulation*

This rule establishes the maximum sulfur content of fossil fuels allowed to be burned in various air quality control regions in the state unless the source is equipped with Sulfur Dioxide (SO<sub>2</sub>) controls or is subject to more stringent sulfur limitations by other requirements. MBRSD is subject to this rule because the existing oil-fired boilers and diesel fired emergency generator each burn a liquid fossil fuel. As such, MBRSD is limited to a fuel sulfur content of 2.0% by weight in its liquid fossil fuels, however, the Best Available Control Technology (BACT) analysis requires a more stringent limit.

*06-096 CMR 115 Major and Minor Source Air Emission License Regulations*

This rule specifies who must obtain an air emission license, describes the information an applicant must submit for a license, and describes the standards and criteria that must be complied with during and following the air licensing process. For minor sources such as MBRSD, 06-096 CMR 115 (as amended) serves as an operating licensing program and a pre-construction license review program.

Federal Air Regulations

*New Source Performance Standards (NSPS)*

40 CFR Part 60 Subpart Dc – MBRSD's existing boilers are rated below 10 MMBtu/hr and therefore are not subject to the *New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989.

40 CFR Part 60, Subpart IIII and JJJJ, "*Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*" is applicable to diesel generators ordered after July 11, 2005 and manufactured after April 1, 2006.

The new diesel generator will be subject to EPA's NSPS for Stationary Compression Ignition Internal Combustion Engines contained in Subpart IIII, and the new LPG generator will be subject to the NSPS for Stationary Spark Ignition Internal Combustion Engines contained in Subpart JJJJ. Subpart IIII will require MBRSD to use only ultra-low sulfur diesel fuel (i.e., less than 15 ppm sulfur) in the diesel generator.

Both generators will also be subject to EPA's NESHAP for Stationary Reciprocating Internal Combustion Engines contained in 40 CFR Part 63, Subpart ZZZZ. Compliance with NSPS Subparts IIII and JJJJ will satisfy the requirements of NESHAP Subpart ZZZZ.

*National Emissions Standards for Hazardous Air Pollutants (NESHAP)*

40 CFR Part 63 Subpart JJJJJ, "*National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers*".

The new pellet boiler, and all of the existing oil-fired boilers with the exception of the Bus Garage boiler, will be subject to EPA's National Emission Standard for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial and Institutional Boilers located at Area HAP Sources, as contained in 40 CFR Part 63, Subpart JJJJJ. The Bus Garage boiler meets the definition of a "hot water heater" in Subpart JJJJJ and is therefore exempt from the rule. Compliance with Subpart JJJJJ will require MBRSD to submit an initial notice to EPA, as well as to perform periodic tune-ups on the boilers and to keep certain records.

40 CFR Part 63, Subpart ZZZZ, "*National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*," regulates certain engines, (reciprocating internal combustion engines, or

“RICES”). However, pursuant to 40 CFR 63.6590 (c) “An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart IIII, for compression ignition engines or 40 CFR Part 60 Subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.” Paragraph (c)(1) includes any new or reconstructed stationary RICE located at an area source. Therefore these units must meet the requirements of 40 CFR Part 60 Subpart IIII or JJJJ to meet the provisions of this rule.

## II. BEST PRACTICAL TREATMENT (BPT)

### A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

### B. Facility Description

Mount Blue Regional School District (MBRSD) operates the following three facilities that are located on adjacent property within the Town of Farmington: Cascade Brook School, Mount Blue Middle School, and the Bus Garage. Each of these facilities contains one or more small oil-fired boilers that are used to provide heat and hot water. Thayer Corporation has been retained by MBRSD to replace one of the two existing oil-fired boilers in the Cascade Brook School with a new wood pellet fired boiler. The boiler will supply heat and hot water to the Cascade Brook School, as well as provide heat and hot water to the Middle School and the Bus Garage through an underground hot water piping system. The pellet boiler will serve as the primary thermal energy source for all three facilities, with the existing oil-fired boilers at each facility utilized when the pellet boiler is unable to maintain the required temperature in the heating system. It is conservatively estimated that the installation of the pellet boiler heating system will reduce MBRSD’s current #2 oil usage by 60%.

In addition to the installation of the pellet boiler system, MBRSD is planning to install standby electric generators at the Cascade Brook School and the Middle

School. A 60-kilowatt LPG-fired generator will be installed at the Cascade Brook School, and a 300-kilowatt diesel-fired generator will be installed at the Middle School. Current plans are to start up the new boiler system and the new generators during August or September of 2013.

The following table identifies the fuel-burning equipment that will be located at the three facilities once the pellet boiler and generator projects are complete.

**Identification of Boilers and Generators to be Licensed**

Location	Unit	Size (MMBTU/hr)	Fuel
Cascade Brook School	Pellet Boiler	2.3	Wood pellets
Cascade Brook School	Oil Boiler	3.6	#2 fuel oil
Cascade Brook School	LPG Generator	0.83	LPG
Middle School	28A-11 Boiler	3.4	#2 fuel oil
Middle School	28A-8 Boiler	2.8	#2 fuel oil
Middle School	Diesel Generator	3.1	Diesel
Bus Garage	Oil Boiler	1.4	#2 fuel oil

The new pellet boiler will be capable of burning different grades of wood pellets. The pellet fuel will be delivered to the school by transport truck which will pneumatically unload the pellets into a storage silo. Pellets will be fed into the boiler's firebox which is equipped with a moving grate. The fuel is gasified on the grate and the resulting combustible gases are mixed with secondary combustion air and burned. The combustion gases come into contact with horizontal heat exchanger tubes within the boiler for transferring thermal energy to the boiler water. The hot water will then be distributed to the three school facilities. A flue gas blower will vent the boiler's combustion gases to a stack. The boiler will be equipped with a flue gas recirculation system for reducing the temperatures in the firebox and for maximizing combustion efficiency.

C. BACT for CBS Pellet Boiler

**Particulate Matter (PM)**

The combustion of solid fuel such as wood creates particulate matter primarily in the form of ash particles that can become entrained in the combustion gas.

Identification and Evaluation of PM Control Technologies

PM emission control devices applicable to conventional biomass-fired boilers include cyclonic separators, wet scrubbers, electrified filter beds, electrostatic precipitators (ESPs), and fabric filters. The use of a PM control device on a wood-

fired boiler is appropriate in situations where the uncontrolled emission rate from the furnace is sufficient to warrant the capital investment and operating costs associated with the control equipment. The proposed pellet boiler has been designed to achieve low PM emission rates without the use of a separate control device. Based on emission test data provided by the boiler manufacturer, MBRSD is proposing a maximum PM emission rate of 0.10 lbs/MMBTU. The resulting potential annual PM emissions from the pellet boiler will be less than 1 ton per year. The use of an add-on PM control device would not be cost-effective and does not represent BACT for this boiler.

#### Selection of BACT for PM

MBRSD will meet BACT for PM by limiting the emissions to 0.10 lbs/MMBtu.

#### **Nitrogen Oxides (NO<sub>x</sub>)**

NO<sub>x</sub> is formed during the combustion of biomass in boilers. "Thermal" NO<sub>x</sub> is formed when atmospheric nitrogen and oxygen present in the combustion air supply react with each other due to high combustion temperatures. "Fuel" NO<sub>x</sub> is formed when nitrogen present in the fuel source is oxidized during combustion. The clean biomass fuel to be burned in MBRSD's proposed boiler will contain relatively small amounts of nitrogen.

#### Identification and Evaluation of NO<sub>x</sub> Control Technologies

NO<sub>x</sub> control techniques are generally organized into two separate groups: combustion controls, and post-combustion controls. Combustion controls affect the combustion conditions to minimize the formation of NO<sub>x</sub>, while post-combustion controls remove NO<sub>x</sub> after it has formed.

##### *Combustion Controls*

State-of-the-art solid fuel boilers are typically equipped with a combustion air distribution system that provides a portion of the required combustion air at the fuel bed location ("primary" air), with additional combustion air provided further downstream in the combustion chamber ("secondary" air). These state-of-the-art combustion systems are designed to carefully control fuel/air mixing, excess air levels, and other combustion parameters to achieve efficient combustion and low emissions.

##### *Post-combustion Controls*

Post-combustion NO<sub>x</sub> reduction technologies include selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR). SCR uses a catalyst to

convert NO<sub>x</sub> to nitrogen gas. An ammonia-based reagent is injected into the boiler's combustion gases upstream of the catalyst, and the reactions to remove NO<sub>x</sub> occur in the presence of the catalyst. SNCR involves the injection of an ammonia-based reagent directly into the furnace section of the boiler within a specific temperature window. Under these conditions, the reagent will react with and reduce NO<sub>x</sub> emissions without the need for a catalyst. Both SCR and SNCR are potentially feasible for utility and industrial scale biomass boiler systems, but are not technically feasible for small pellet boilers such as the unit proposed for MBRSD.

With proper combustion controls, NO<sub>x</sub> emissions from small biomass boilers can generally be limited to relatively low levels. The potential annual NO<sub>x</sub> emissions from MBRSD's pellet boiler will be less than 3 tons per year through the use of combustion controls. The use of additional NO<sub>x</sub> control techniques would not be cost-effective and do not represent BACT for this boiler.

#### Selection of BACT for NO<sub>x</sub>

Based on emission test data provided by the boiler manufacturer, MBRSD is proposing to limit the boiler's NO<sub>x</sub> emissions to 0.30 lbs/MMBtu and will meet BACT through the use of the boiler's combustion control system.

#### **Sulfur Dioxide (SO<sub>2</sub>)**

The combustion of biomass fuel in a boiler will result in SO<sub>2</sub> emissions as a result of the oxidation of small amounts of naturally occurring sulfur in the fuel. Clean biomass fuels contain inherently low sulfur levels.

#### Identification and Evaluation of SO<sub>2</sub> Control Technologies

Control technologies that are available to reduce SO<sub>2</sub> emissions from biomass combustion include the addition of a dry reagent into the furnace or exhaust duct, and the use of aqueous-based reagents in a scrubber vessel (including wet scrubbers and spray dryers). Application of these technologies to biomass boilers has generally been limited to facilities that are permitted to burn alternative fuels containing higher levels of sulfur, such as coal and tire-derived fuel. The biomass fuel to be used in MBRSD's boiler will consist of clean biomass materials. The SO<sub>2</sub> emissions produced from combustion of clean wood pellets is sufficiently low that add-on SO<sub>2</sub> control technologies would not be cost-effective, nor would they result in a significant environmental benefit. MBRSD's switch from #2 fuel oil to wood pellets as its primary fuel source will, by itself, result in a net reduction in SO<sub>2</sub> emissions from the three MBRSD facilities being licensed.



#### Selection of BACT for SO<sub>2</sub>

MBRSD will meet BACT for SO<sub>2</sub> through the use of biomass fuel and an SO<sub>2</sub> emission limit of 0.025 lb/MMBtu.

#### **Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)**

CO and VOC are formed as a result of incomplete combustion of organic material in the furnace.

#### Identification and Evaluation of CO and VOC Control Technologies

##### *Combustion Controls*

CO and VOC emissions are controlled by maintaining proper combustion conditions within the furnace. This involves control of excess air levels, distribution of combustion air within the furnace, achieving proper gas turbulence and residence time, and other factors.

##### *Add-on Emission Controls*

Oxidation catalysts have been used in limited instances on large biomass boiler plants to control emissions of CO. An oxidation catalyst also reduces VOC emissions, although to a lesser degree. Use of an oxidation catalyst on MBRSD's pellet boiler would not be technically feasible.

#### Selection of BACT for CO and VOC

MBRSD will meet BACT by using combustion controls to minimize emissions of CO and VOC. Based on emission test data provided by the boiler manufacturer, MBRSD is proposing to limit the boiler's CO and VOC emissions to 0.10 lbs/MMBtu and 0.01 lbs/MMBtu, respectively.

#### **1. BACT Findings for the CBS Pellet Boiler #1**

The BACT emission limits for the CBS Pellet Boiler #1 were based on the following:

PM/PM<sub>10</sub> – 0.10 lb/MMBtu based on 06-093 CMR BACT  
SO<sub>2</sub> – 0.025 lb/MMBtu/ based on AP-42 dated 2003 for wood fired boilers  
NO<sub>x</sub> – 0.30 lb/MMBtu based on 06-096 CMR BACT  
CO – 0.10 lb/MMBtu based on 06-096 CMR BACT  
VOC – 0.01 lb/MMBtu gal, based on 06-096 CMR BACT

The BPT emission limits for the boiler are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CBS Pellet Boiler (2.3 MMBtu/hr) wood pellets	0.3	0.3	0.1	0.7	0.3	0.1

Visible emissions from the boiler shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period.

## 2. Periodic Monitoring

MBRSD shall be limited to 600 tons/yr of wood. Periodic monitoring for the boiler shall include recordkeeping to document fuel use on a calendar year basis.

## 3. 40 CFR Part 63 Subpart JJJJJJ

CBS Pellet Boiler #1 may be subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJJ). The unit is considered a new boiler rated less than 10 MMBtu/hr.

For informational purposes, a summary of the currently applicable federal 40 CFR Part 63 Subpart JJJJJJ requirements is listed below. At this time, the Department has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however MBRSD is still subject to the requirements. Notification forms and additional rule information can be found on the following website: <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>.

### a. Compliance Dates, Notifications, and Work Practice Requirements

#### i. Initial Notification of Compliance

An Initial Notification submittal to EPA is due no later than January 20, 2014 or for new sources - within 120 days after the source becomes subject to the standard. [40 CFR Part 63.11225(a)(2)]

#### ii. Boiler Tune-Up Program

(a) A boiler tune-up program shall be implemented to include the initial tune-up of applicable boilers no later than March 21, 2014.

[40 CFR Part 63.11196(a)(1)] Note: new sources that have applicable work practice standards or management practices are not required to complete an initial performance tune-up. [40 CFR Part 63.11210(f)]

- (b) The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:
  - 1. As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(1)]
  - 2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR Part 63.11223(b)(2)]
  - 3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(3)]
  - 4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 63.11223(b)(4)]
  - 5. Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 CFR Part 63.11223(b)(5)]
  - 6. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 CFR Part 63.11223(b)(7)]
- (c) After conducting the initial boiler tune-up, a Notification of Compliance Status shall be submitted to EPA no later than July 19, 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]

- (d) The facility shall implement a boiler tune-up program after the initial tune-up and initial compliance report (called a Notification of Compliance Status) has been submitted.
1. Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. See chart below:

Boiler Category	Tune-Up Frequency
New or Existing Oil, Biomass and Coal fired boilers that are not designated as "Boilers with less frequent tune up requirements" listed below	Every 2 years
<b>New Biomass Boilers with less frequent tune up requirements</b>	
Seasonal (see definition §63.11237)	Every 5 years
Limited use (see definition §63.11237)	Every 5 years
With an oxygen trim system	Every 5 years

[40 CFR Part 63.11223(a) and Table 2]

2. The tune-up compliance report shall be maintained onsite and, if requested, submitted to EPA. The report shall contain the concentration of CO in the effluent stream (ppmv) and oxygen in volume percent, measured at high fire or typical operating load, before and after the boiler tune-up, a description of any corrective actions taken as part of the tune-up of the boiler, and the types and amounts of fuels used over the 12 months prior to the tune-up of the boiler. [40 CFR Part 63.11223(b)(6)]  
The compliance report shall also include the company name and address; a compliance statement signed by a responsible official certifying truth, accuracy, and completeness; and a description of any deviations and corrective actions. [40 CFR Part 63.11225(b)]

b. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63 Subpart JJJJJ including the following [40 CFR Part 63.11225(c)]: copies of notifications and reports with supporting compliance documentation; identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned; documentation of fuel type(s) used monthly

by each boiler; the occurrence and duration of each malfunction of the boiler; and actions taken during periods of malfunction to minimize emissions and actions taken to restore the malfunctioning boiler to its usual manner of operation. Records shall be in a form suitable and readily available for expeditious review.

Note: EPA will require submission of Notification of Compliance Status reports for tune-ups and energy assessments through their electronic reporting system. However, the system will not be in place until October 2013, so sources may submit the written NOCS to the EPA Administrator. [63.1125(a)(4)(vi)]

D. BACT for Oil-Fired Boilers

**SO<sub>2</sub>**

Techniques available for limiting SO<sub>2</sub> emissions from oil-fired boilers include SO<sub>2</sub> scrubbing systems and use of low sulfur oil. For boilers of this size and fuel type, SO<sub>2</sub> scrubbing systems are not economically practical, as the uncontrolled SO<sub>2</sub> emission levels are already low. Given the limited operation that the oil-fired boilers are expected to see on an annual basis once the pellet boiler is installed, MBRSD will meet BACT for SO<sub>2</sub> by limiting the oil sulfur content to a maximum of 0.5% by weight. MBRSD's overall SO<sub>2</sub> emissions from the three facilities being licensed will be reduced through the switch of the primary fuel supply from #2 fuel oil to wood pellets.

**NO<sub>x</sub>**

NO<sub>x</sub> control techniques are generally organized into two separate groups: combustion controls, and post-combustion controls. Combustion controls affect the combustion conditions to minimize the formation of NO<sub>x</sub>, while post-combustion controls remove NO<sub>x</sub> after it has formed. Combustion controls that can be employed to minimize NO<sub>x</sub> formation on oil-fired boilers include low NO<sub>x</sub> burners and flue gas recirculation (FGR). Post-combustion NO<sub>x</sub> control technologies include SNCR and SCR. Neither SCR nor SNCR would be technically feasible to retrofit onto the small oil-fired boilers at the MBRSD facilities. With potential annual NO<sub>x</sub> emissions from all oil-fired boilers combined being only 1 ton per year, it would not be cost-effective to retrofit any of the existing oil-fired boilers with new low NO<sub>x</sub> burners or FGR equipment. MBRSD will meet BACT for NO<sub>x</sub> emissions using the boilers' existing combustion controls.

## CO, PM, and VOC

Emissions of CO, PM and VOC from #2 oil-fired boilers are generally very low. Emission control equipment is not economically practical. MBRSD will meet BACT for these pollutants through the use of the boilers' existing combustion controls.

### 1. BACT Findings

The BACT emission limits for the oil boilers were based on the following:

PM/PM<sub>10</sub> – 0.08 lb/MMBtu based on 06-096 CMR 115, BACT  
SO<sub>2</sub> – based on firing ASTM D396 compliant #2 fuel oil (0.5% sulfur); 0.5 lb/MMBtu  
NO<sub>x</sub> – 0.35 lb/MMBtu based on previous licenses  
CO – 5 lb/1000 gal, AP-42, Table 1.3-1, dated 5/10  
VOC – 0.2 lb/1000 gal, AP-42, Table 1.3-3, dated 5/10

The BACT emission limits for the boilers are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CBS oil boiler	0.4	0.4	1.8	1.5	0.2	0.1
MS Boiler #1	0.4	0.4	1.7	1.4	0.2	0.1
MS Boiler #2	0.3	0.3	1.4	1.1	0.1	0.1
BG Boiler	0.2	0.2	0.7	0.6	0.1	0.1

Visible emissions from each boiler firing ASTM D396 #2 fuel oil shall not exceed 20% opacity on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period.

### 2. Periodic Monitoring

MBRSD shall be limited to 100,000 gallons/year of #2 fuel oil from the oil fired boilers. Periodic monitoring for the boilers shall include recordkeeping to document fuel use on a calendar year basis. Documentation shall include the type of fuel used and sulfur content of the fuel.

Prior to January 1, 2016 or by the date otherwise stated in 38 MRSA §603-A(2)(A)(3), the #2 fuel oil fired at the MBRSD shall be ASTM D396 compliant #2 fuel oil (maximum sulfur content of 0.5% by weight). Per 38 MRSA §603-A(2)(A)(3), beginning January 1, 2016 or on the date specified in the statute, the facility shall fire #2 fuel oil with a maximum sulfur content

limit of 0.005% by weight (50 ppm), and beginning January 1, 2018 or on the date specified in the statute, the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm). The specific dates contained in this paragraph reflect the current dates in the statute as of the effective date of this license; however, if the statute is revised, the facility shall comply with the revised dates upon promulgation of the statute revision.

**3. 40 CFR Part 63 Subpart JJJJJ**

With the exception of the Garage Boiler, the oil boilers may be subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources (40 CFR Part 63 Subpart JJJJJ). The units are considered existing oil boilers, rated less than 10 MMBtu/hr.

For informational purposes, a summary of the currently applicable federal 40 CFR Part 63 Subpart JJJJJ requirements is listed below. At this time, the Department has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however MBRSD is still subject to the requirements. Notification forms and additional rule information can be found on the following website: <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>.

**a. Compliance Dates, Notifications, and Work Practice Requirements**

**i. Initial Notification of Compliance**

An Initial Notification submittal to EPA is due no later than January 20, 2014. [40 CFR Part 63.11225(a)(2)]

**ii. Boiler Tune-Up Program**

(a) A boiler tune-up program shall be implemented to include the initial tune-up of applicable boilers no later than March 21, 2014. [40 CFR Part 63.11196(a)(1)]

(b) The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:

1. As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers

- with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(1)]
2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR Part 63.11223(b)(2)]
  3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(3)]
  4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 63.11223(b)(4)]
  5. Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 CFR Part 63.11223(b)(5)]
  6. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 CFR Part 63.11223(b)(7)]
- (c) After conducting the initial boiler tune-up, a Notification of Compliance Status shall be submitted to EPA no later than July 19, 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]
- (d) The facility shall implement a boiler tune-up program after the initial tune-up and initial compliance report (called a Notification of Compliance Status) has been submitted.
1. Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler.

Boiler Category	Tune-Up Frequency
With a heat input capacity of <5MMBtu/hr	Every 5 years

[40 CFR Part 63.11223(a) and Table 2]

2. The tune-up compliance report shall be maintained onsite and, if requested, submitted to EPA. The report shall contain the



concentration of CO in the effluent stream (ppmv) and oxygen in volume percent, measured at high fire or typical operating load, before and after the boiler tune-up, a description of any corrective actions taken as part of the tune-up of the boiler, and the types and amounts of fuels used over the 12 months prior to the tune-up of the boiler. [40 CFR Part 63.11223(b)(6)]

The compliance report shall also include the company name and address; a compliance statement signed by a responsible official certifying truth, accuracy, and completeness; and a description of any deviations and corrective actions. [40 CFR Part 63.11225(b)]

b. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63 Subpart JJJJJ including the following [40 CFR Part 63.11225(c)]: copies of notifications and reports with supporting compliance documentation; identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned; documentation of fuel type(s) used monthly by each boiler; the occurrence and duration of each malfunction of the boiler; and actions taken during periods of malfunction to minimize emissions and actions taken to restore the malfunctioning boiler to its usual manner of operation. Records shall be in a form suitable and readily available for expeditious review.

Note: EPA will require submission of Notification of Compliance Status reports for tune-ups and energy assessments through their electronic reporting system. However, the system will not be in place until October 2013, so sources may submit the written NOCS to the EPA Administrator. [63.1125(a)(4)(vi)]

E. BACT for Emergency Generators (MS Generator & CBS Generator)

**SO<sub>2</sub>**

MBRSD is licensing the new generators as emergency use generators and is proposing an annual operating limit of 500 hours for each unit. At this low level of operation, the only practical method for limiting sulfur dioxide emissions is through the use of low sulfur fuel. MBRSD will minimize SO<sub>2</sub> emissions from the diesel generator by using diesel fuel having a sulfur content no greater than 0.0015% by weight, in accordance with NSPS Subpart III. The SO<sub>2</sub> emissions from the LPG generator will be negligible based on the inherently low sulfur content of LPG.

## NO<sub>x</sub>

SCR technology is a NO<sub>x</sub> control technology that is sometimes used to reduce NO<sub>x</sub> emissions from diesel and gas-fired engines. For generators that will be limited by license to 500 hours per year of operation, with actual operating time expected to be much lower, SCR technology would not be cost-effective and would not provide a significant environmental benefit. For these reasons, SCR does not represent BACT for either the diesel generator or the LPG generator.

Both the diesel generator and the LPG generator will be equipped with engines that are EPA-certified for Stationary Emergency Applications. The emissions control technology that is incorporated into each engine's design represents BACT for NO<sub>x</sub> emissions.

## CO, PM, and VOC

Emissions of CO, PM and VOC from new diesel and LPG-fired engines of this size are generally controlled through engine design. For emergency use engines that will be limited to 500 hours per year of operation, add-on control equipment would not be cost-effective, would not provide a significant environmental benefit, and therefore would not represent BACT. MBRSD will meet BACT by utilizing generators that are equipped with EPA-certified engines.

### 1. BACT Findings for the MS emergency generator firing diesel fuel:

The BACT emission limits for the MS emergency generator are based on the following:

PM/PM<sub>10</sub> – 0.12 lb/MMBtu, based on 06-096 CMR 103  
SO<sub>2</sub> – based on firing 0.0015% sulfur, 0.0015 lb/MMBtu  
NO<sub>x</sub> – 4.41 lb/MMBtu, AP-42, Table 3.3-1 (dated 10/96)  
CO – 0.95 lb/MMBtu, AP-42, Table 3.3-1 (dated 10/96)  
VOC – 0.36 lb/MMBtu, AP-42, Table 3.3-1 (dated 10/96)  
Opacity – visible emissions from Generator #1 shall not exceed 20% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period based on 06-096 CMR 115 (BACT).

Unit	PM (lb/MMBtu)
MS Generator (3.1 MMBtu/hr, Diesel)	0.12

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
MS Generator	0.4	0.4	0.1	13.7	2.9	1.7

The MS Generator shall be limited to 500 hours of operation a year, based on a calendar year. MBRSD shall keep records of the hours of operation for the unit. To meet the requirements of BACT, the emergency generator will burn ultra-low sulfur diesel oil (15 parts per million).

40 CFR Part 60, Subpart IIII

The federal regulation 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)* is applicable to the emergency generator listed above since the unit was ordered after July 11, 2005 and manufactured after April 1, 2006. By meeting the requirements of Subpart IIII, the unit also meet the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ.

a. Emergency Definition:

Emergency stationary ICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

- (1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.
- (2) Paragraph (1) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
  - (i) Maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional

hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

- (ii) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
- (iii) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

- (3) Paragraphs (1) and (2) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except if the following conditions are met:

- (i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
- (ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
- (iii) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (iv) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (v) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR §60.4211(f) and §60.4219]

b. 40 CFR Part 60, Subpart IIII Requirements:

(1) Manufacturer Certification Requirement

The generator shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 CFR §60.4202. [40 CFR §60.4205(b)]

(2) Ultra-Low Sulfur Diesel Fuel Requirement

The diesel fuel fired in the generator shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR §60.4207(b)]

(3) Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4209(a)]

(4) Operation and Maintenance Requirements

The generator shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by facility that are approved by the engine manufacturer. MBRSD may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

(5) Annual Time Limit for Maintenance and Testing

The generator shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). [40 CFR §60.4211(f)]

(6) Initial Notification Requirement

No initial notification is required for emergency engines. [40 CFR §60.4214(b)]

(7) Annual Reporting Requirements for Demand Response Availability  
Over 15 Hours Per Year (for generators greater than 100 brake hp)

If MBRSD operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) ([www.epa.gov/cdx](http://www.epa.gov/cdx)). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

[40 CFR §60.4214(d)]

2. BACT Findings for the CBS emergency generator firing propane:

PM/PM<sub>10</sub> 0.05 lb/MMBtu, BACT determination  
SO<sub>2</sub> 0.00058 lb/MMBtu: AP-42, BACT determination  
NO<sub>x</sub> 8.33 gm/kW-hr: manufacturer data  
CO 29.61 gm/kW-hr: manufacturer data  
VOC 1.33: manufacturer data  
Opacity – visible emissions from the CBS Generator shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period based on 06-096 CMR 115 (BACT).

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CBS Generator	0.1	0.1	0.1	1.5	5.5	0.3

The CBS Generator shall be limited to 500 hours of operation a year, based on a calendar year. MBRSD shall keep records of the hours of operation for the unit.

40 CFR Part 60, Subpart JJJJ

The federal regulation 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Spark Ignition Internal Combustion Engines (SI ICE)* is applicable to the CBS Emergency Generator listed above since the unit was ordered after June 12, 2006 and manufactured after January 1, 2009. By meeting the requirements of Subpart JJJJ, the unit also meet the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ.

a. Emergency Definition:

Emergency stationary ICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

- (1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.
- (2) Paragraph (1) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
  - (i) Maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
  - (ii) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability

Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

- (iii) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- (3) Paragraphs (1) and (2) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except if the following conditions are met:

- (i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
- (ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
- (iii) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (iv) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (v) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR §60.4243(d) and §60.4248]

**b. 40 CFR Part 60, Subpart JJJJ Requirements:**

**(1) Manufacturer Certification Requirement**

The generator shall be certified by the manufacturer as meeting the Phase 1 emission standards in 40 CFR §90.103 applicable to class II engines and other requirements for new nonroad SI engines in 40CFR Part 90.



**(2) Non-Resettable Hour Meter Requirement**

A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4237]

**(3) Operation and Maintenance Requirement**

The generator shall be operated and maintained according to the manufacturer's written instructions or procedures developed by facility that are approved by the engine manufacturer. MBRSD may only change those settings that are permitted by the manufacturer. [40 CFR §60.4243]

**(4) Annual Time Limit for Maintenance and Testing**

The generator shall be limited to 100 hours/year for maintenance and testing. The emergency engine may operate up to 50 hours per year in non-emergency situations, but those 50 hours are included in the 100 hours allowed for maintenance and testing. The 50 hours for non-emergency use cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR §60.4243(d)]

**(5) Annual Reporting Requirement for Demand Response Availability Over 15 Hours Per Year (for generators greater than 100 brake hp)**

If MBRSD operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4243(d)(3)(i), the facility shall submit an annual report containing the information in §60.4245(e)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) ([www.epa.gov/cdx](http://www.epa.gov/cdx)). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

[40 CFR §60.4245(e)]

F. Annual Emissions

1. The potential annual emissions from MBRSD's three facilities are based on a maximum annual fuel oil consumption level of 100,000 gallons for the oil-fired boilers; a maximum annual pellet fuel consumption level of 600 tons, and a maximum operating level of 500 hours per year for each of the two generators. MBRSD's actual consumption levels for fuel oil and wood pellets are expected to be significantly less than the maximum levels listed above, and the actual utilization of the generators is expected to be much lower than 500 hours per year. The maximum fuel consumption and generator operating levels listed above were selected to ensure that the annual potential emissions were conservatively calculated.

**Total Licensed Annual Emissions for the Facility**  
**Tons/year**  
(used to calculate the annual license fee)

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
CBS Pellet Boiler #1	0.5	0.5	0.2	1.5	0.5	0.1
CBS Oil Boiler #2, MS Boiler #1, MS Boiler #2, and BG Boiler	0.9	0.9	3.5	2.8	0.3	0.1
MS Generator	0.1	0.1	0.1	0.7	0.2	0.1
CBS Generator	0.1	0.1	0.1	0.4	1.4	0.1
<b>Total TPY</b>	<b>1.6</b>	<b>1.6</b>	<b>3.9</b>	<b>5.4</b>	<b>2.4</b>	<b>0.4</b>

2. Greenhouse Gases

Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans*, 40 CFR Part 52, Subpart A, §52.21 Prevention of Significant Deterioration of Air Quality rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended), are the aggregate group of the following gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO<sub>2</sub>e).

Based on the facility's fuel use limit(s), the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, MBRSD is below the major source

threshold of 100,000 tons of CO<sub>2</sub>e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

### III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be determined by the Department on a case-by case basis. In accordance with 06-096 CMR 115, an ambient air quality impact analysis is not required for a minor source if the total emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

The total facility licensed emissions are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

### ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-1085-71-A-N subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

### STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which

any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).

- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353-A. [06-096 CMR 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]
- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]

- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]
- (11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:
- A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
    - 1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
    - 2. pursuant to any other requirement of this license to perform stack testing.
  - B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
  - C. submit a written report to the Department within thirty (30) days from date of test completion.
- [06-096 CMR 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
  - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
  - C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
- [06-096 CMR 115]

- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emissions and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

#### **SPECIFIC CONDITIONS**

(16) **CBS Pellet Boiler #1**

- A. MBRSD shall fire wood pellets in the CBS Pellet Boiler #1 as described in this air emissions license. MBRSD shall be limited to 600 tons/yr of wood and shall maintain records to document fuel use a calendar year basis.
- B. Emissions shall not exceed the following: [06-096 CMR 115, BACT]

<b>Emission Unit</b>	<b>PM (lb/hr)</b>	<b>PM<sub>10</sub> (lb/hr)</b>	<b>SO<sub>2</sub> (lb/hr)</b>	<b>NO<sub>x</sub> (lb/hr)</b>	<b>CO (lb/hr)</b>	<b>VOC (lb/hr)</b>
CBS Pellet Boiler	0.3	0.3	0.1	0.7	0.3	0.1

- C. Visible emissions from CBS Pellet Boiler #1 shall not exceed 20% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a continuous 3-hour period. [06-096 CMR 101]

(17) **CBS Oil Boiler #2, MS Boiler #1, MS Boiler #2, BG Boiler**

A Fuel

1. Total ASTM D396 #2 fuel use for the boilers shall not exceed 100,000 gal/yr, on a calendar year basis.
2. Prior to January 1, 2016 or on the date specified in 38 MRSA §603-A(2)(A)(3), the #2 fuel oil fired in the boilers shall be ASTM D396 compliant (max. sulfur content of 0.5% by weight). [06-096 CMR 115, BPT]
3. Beginning January 1, 2016 or on the date specified in 38 MRSA §603-A(2)(A)(3), the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm). [38 MRSA §603-A(2)(A)(3)]
4. Beginning January 1, 2018 or on the date specified in 38 MRSA §603-A(2)(A)(3), the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm). [38 MRSA §603-A(2)(A)(3)]
5. Compliance shall be demonstrated by fuel records from the supplier showing the quantity, type, and the percent sulfur of the fuel delivered (if applicable). Records of annual fuel use shall be kept on a calendar year basis. [06-096 CMR 115, BPT]

B. Emissions from each boiler shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler (CBS Oil Boiler #1, MS Boiler #1, MS Boiler #2, & BG Boiler)	PM	0.12	06-096 CMR 115, BACT

C. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CBS Oil Boiler #2	0.4	0.4	1.8	1.5	0.2	0.1
MS Boiler #1	0.4	0.4	1.7	1.4	0.2	0.1
MS Boiler #2	0.3	0.3	1.4	1.1	0.1	0.1
BG Boiler	0.2	0.2	0.7	0.6	0.1	0.1

- D. Visible emissions from each boiler firing fuel oil shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 101]

(18) **Emergency Generator (MS Generator)**

- A. The MS Generator is limited to 500 hours per year total operation, based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [06-096 CMR 115]
- B. The diesel fuel sulfur content for the MS Generator shall be limited to 0.0015% sulfur. Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 115, BPT]
- C. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
MS Generator	PM	0.12	06-096 CMR 103(2)(B)(1)(a)

- D. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
MS Generator (3.1 MMBtu/hr)	0.4	0.4	0.1	13.7	2.9	1.7

- E. Visible Emissions

Visible emissions from the diesel generator shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BACT]

- F. The MS Generator shall meet the applicable requirements of 40 CFR Part 60, Subpart IIII, including the following:

1. **Manufacturer Certification**

The generator shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in §60.4202. [40 CFR §60.4205(b)]

2. **Ultra-Low Sulfur Diesel Fuel**

The diesel fuel fired in the generator shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing diesel fuel purchased (or



otherwise obtained) prior to October 1, 2010, may be used until depleted. Compliance with the fuel sulfur content limit shall be based on fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [40 CFR §60.4207(b) and 06-096 CMR 115]

**3. Non-Resetable Hour Meter**

A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4209(a)]

**4. Annual Time Limit for Maintenance and Testing**

The generator shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [40 CFR §60.4211(f) and 06-096 CMR 115]

**5. Operation and Maintenance**

The generator shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by MBRS that are approved by the engine manufacturer. MBRS may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

**6. Annual Reporting For Demand Response Availability Over 15 Hours Per Year (for generators greater than 100 brake hp). If MBRS operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) ([www.epa.gov/cdx](http://www.epa.gov/cdx)). However, if the reporting form is not available in**

CEDRI at the time that the report is due, the written report must be submitted to the following address:

Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

[40 CFR §60.4214(d)]

(19) **Emergency Generator (CBS Generator)**

- A. The CBS Generator is limited to 500 hours per year total operation, based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [06-096 CMR 115]
- B. The CBS Generator shall fire propane. Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered. [06-096 CMR 115, BPT]
- C. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
CBS Generator	PM	0.05	06-096 CMR 115, BACT

- D. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CBS Generator	0.1	0.1	0.1	1.5	5.5	0.3

- E. Visible Emissions

Visible emissions from the propane fired CBS Generator shall not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BACT]

- F. The CBS Generator shall meet the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including the following:

1. **Manufacturer Certification**

The generator shall be certified by the manufacturer as meeting the Phase 1 emission standards in 40CFR90.103 applicable to class II engines and other requirements for new nonroad SI engines in 40 CFR Part 90.

2. Non-Resettable Hour Meter

A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4237 and 06-096 CMR 115, BPT]

3. Annual Time Limit for Maintenance and Testing

The generator shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4243(d)(3)(i) are met). The limits are based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [40 CFR §60.4243(d) and 06-096 CMR 115]

4. Operation and Maintenance

The generator shall be operated and maintained according to the manufacturer's written instructions or procedures developed by MBRSD that are approved by the engine manufacturer. MBRSD may only change those settings that are permitted by the manufacturer. [40 CFR §60.4243]

- (20) MBRSD shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 17 DAY OF July, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Corne for  
PATRICIA W. AHO, COMMISSIONER

**The term of this license shall be ten (10) years from the signature date above.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: May 16, 2013

Date of application acceptance: May 30, 2013

Date filed with the Board of Environmental Protection:

This Order prepared by Edwin Cousins, Bureau of Air Quality

